

disappeared, but after the next meal the effect of the tartrate of potash was again apparent. 10 drachms of tartrate of potash taken in three days produced but little, if any effect, on the acidity of the urine twenty-four hours after the last dose was taken.

2. "On the direct production of Heat by Magnetism." By W. R. Grove, Esq., M.A., V.P.R.S. &c.

The author recites the experiments of Messrs. Marrian, Beatson, Wertheim and De la Rive on the phenomenon made known some years ago, that soft iron when magnetized emitted a sound or musical note.

He also mentions an experiment of his own, published in January 1845, where a tube was filled with the liquid in which magnetic oxide had been prepared, and surrounded by a coil; this showed, to a spectator looking through it, a considerable increase of the transmitted light when the coil was electrized.

All these experiments the author considers go to prove that whenever magnetization takes place a change is produced in the molecular condition of the substances magnetized; and it occurred to him that, if this be the case, a species of molecular friction might be expected to obtain, and by such molecular friction heat might be produced.

In proving the correctness of these conjectures difficulties presented themselves, the principal of which was, that with electro-magnets the heat produced by the electrized coil surrounding them, might be expected to mask any heat developed by the magnetism. This interference, after several experiments, the author considers he entirely eliminated by surrounding the poles of an electro-magnet with cisterns of water, and by this means and by covering the keeper with flannel, and other expedients, he was enabled to produce in a cylindrical soft-iron keeper when rapidly magnetized and demagnetized in opposite directions a rise of temperature several degrees beyond that which obtained in the electro-magnet, and which therefore could not have been due to conduction or radiation of heat from such magnet. A series of experiments with this apparatus is given.

By filling the cisterns with water colder than the electro-magnet, the latter could be cooled by the water while the keeper was being heated by the magnetization.

The author subsequently obtained distinct thermic effects in a bar of soft iron placed opposite to a rotating permanent steel magnet, using a delicate thermo-electrical apparatus placed at his disposal by Mr. Gassiot.

To eliminate the effects of magneto-electrical currents, the author then made similar experiments with non-magnetic metals and with silico-borate of lead, substituted for the iron keepers, but no thermic effects were developed.

He then tried the magnetic metals nickel and cobalt, and obtained thermic effects with both, and in proportion to their magnetic intensity.

Some questions of theory suggested by the above experiments

and relating to the rationale of the action of what are termed 'the imponderables' and to terrestrial magnetism, are then briefly discussed, and the author concludes by stating that he considers his experiments prove satisfactorily, that whenever a bar of iron or other magnetic metal is magnetized, its temperature is raised.

June 7, 1849.

The Annual Meeting for the election of Fellows was held this day,—

The EARL OF ROSSE, President, in the Chair.

His Lordship addressed the Society.

On the motion of the Marquis of Northampton, seconded by Sir Robert Harry Inglis, Bart., the thanks of the Society were voted to the President for his admirable Address.

The Statutes relative to the election of Fellows having been read,—

Mr. William Tooke moved the following resolution :—

"That the election of Fellows be adjourned until Thursday the 21st instant at three o'clock, and that it be recommended to the Council that the list for such election shall comprise the names of all the Candidates, designating those selected by the Council in such manner as may be deemed fit."

The resolution having been seconded by Dr. John Lee, the Marquis of Northampton moved the following amendment, which was seconded by Sir Henry De la Beche :—

"That the Society do now proceed to the election of Fellows."

The amendment, having been put from the Chair, was declared to be carried.

Sir Henry De la Beche and Mr. Gray were, with the consent of the Society, appointed Scrutators to assist the Secretaries in examining the lists.

The votes of the Fellows present having been collected, the following gentlemen were declared duly elected :—

John Couch Adams, Esq.	William Lassell, Esq.
Thomas Andrews, M.D.	Henry Beaumont Leeson,
Robert Alfred Cloyne Austen,	M.D.
Esq.	Andrew Crombie Ramsay,
Charles Barry, Esq.	Esq.
Benjamin Collins Brodie, Esq.	John Scott Russell, Esq.
John Dalrymple, Esq.	Francis Sibson, M.D.
James Glaisher, Esq.	Robert Stephenson, Esq.
Sir Robert Kane, M.D.	Lieut.-Col. Philip Yorke.

On the motion of Sir Charles Lemon, Bart., seconded by the Marquis of Northampton, it was unanimously resolved,—

"That the Noble President be requested to communicate to the

Government of the United States the expression of the thanks of the Royal Society for the steps taken to ascertain the fate of the expedition under Sir John Franklin, F.R.S., and to afford relief if it shall be necessary."

June 14, 1849.

The EARL OF ROSSE, President, in the Chair.

His Lordship announced, that in accordance with the resolution of the Society, requesting him to communicate the thanks of the Society to the Government of the United States for the steps taken by them to ascertain the fate of the Expedition under Sir John Franklin, he had addressed the following letter to His Excellency the American minister:—

MY DEAR SIR,

3 Connaught Place, June 8, 1849.

I have the honour to inform you, that at the annual meeting of the Royal Society, held the 7th inst., a communication was read from Admiral Sir Francis Beaufort, in which he apprised the Society that the American Government had nobly undertaken to send an expedition in search of Sir John Franklin. Upon which a vote of thanks was moved by Sir Charles Lemon, seconded by Lord Northampton, and carried with the utmost enthusiasm, expressive of the gratitude of the Royal Society to the American Government, and of their deep sense of the kind and brotherly feeling which had prompted so liberal an act of humanity. Allow me to assure you, that it is peculiarly gratifying to me to have the honour of being the humble instrument in conveying to you the thanks of the Royal Society on this occasion, and permit me to express a hope that this most generous act of the United States may, if possible, draw closer the bonds of friendship between the two kindred nations.

That the United States may continue to progress with the same extraordinary rapidity in the arts of peace and civilization, and to hold the same high place in the science and literature of the world, is I am sure the anxious desire of the Royal Society.

I have the honour to be,

My dear Sir,

Your most obedient humble Servant,

ROSSE, P.R.S.

The following papers were read:—

1. "On Carbonate of Lime as an ingredient of Sea-water." By John Davy, M.D., F.R.S. Lond. & Ed., Inspector-General of Army Hospitals, &c.

The manner in which limestone cliffs rising above deep water are worn by the action of the sea, as it were by a weak acid, such as we know it contains, viz. the carbonic—the manner, further, in which the sand on low shores where the waves break, becomes consolidated, converted into sandstone, by the deposition of carbonate of lime